

Case 3-1

Wanted: Hexy

CONTRACT

1993 09 21 08 30

To: Lone Star Detecting and Investigating Inc.
From: F. Jay McCallister, Chief Warden
Federal Penitentiary, Ottawa
Re: Contract for BlockHead Posters.

With this Contract I confirm our earlier discussions in which Lone Star Detecting and Investigating Inc. (to be known as the AGENCY in all further communication) has agreed to provide a **COMPLETE** set of posters for an escapee from the Federal Prism who, because of his "angular head" is known as "BlockHead".

We know that BlockHead is a *master of disguise* and usually eludes capture by hiding in 2-dimensions. To assist in his capture we are contracting with your Agency to prepare a **Complete** set of posters of Blockhead hiding in 2-Dimensions.

Please do not hesitate to call us in regard to further information but we trust you will be able to gather whatever other information you need from local sources.

We need a complete set so that each of our agents can recognize Blockhead no matter how clever he is in disguising himself.

Thank you for accepting this contract for services.

Looking forward to hearing from you soon.



F. Jay McCallister
Chief Warden



Date: 93/ 09/ 22/ 13/ 06
yy mo da h min

Place: office

Case: Posters for "BlockHead"

- "BlockHeads" What are these? Where can I find out? Who to contact?
- Cube is a blockhead. Any Aliases?
- BlockHeads hiding in 2-dimensions? How do BlockHeads hide in 2-dimensions? Contact Professor Matsumoto at U of C - he'll know. Phone number?
- Wanted Posters? Any special form? Contact Warden. His secretary will know. FAX tomorrow.
- 09 22 18 21 Faxes from the Warden's office look OK. That secretary thought I didn't know "Hexy" was an Alias!
- 09 22 18 32 Phone from Chief. New twist. Hexy also hiding in straws! What next?
- 09 22 23 56 New Fax from Warden. Pick up tomorrow. Need to get some shut eye.
- 09 23 05 50 No sleep for the wicked. Origami!! Must be a joke from Matsumoto! I'll get him for this. Posters. Straws. Origami. This case getting too big. Need help.

Matsumoto Ph.D. Consulting Intelligence Services Incorporated

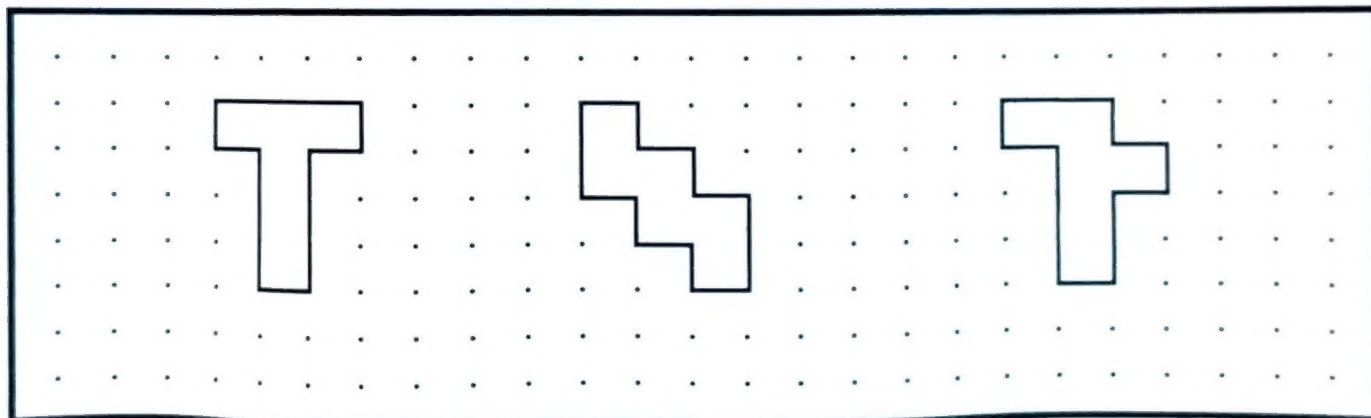
To Agent Bagdonovich

Date 1993 09 22 14 21

From Matsumoto

Re Your inquiry as to the nature and identity of "BlockHeads"

- I was surprised that some people are still using the term "BlockHeads". The technical term is "prisms" but, no matter. Apparently the Warden is interested in just one BlockHead – the cube, the guy that looks like a dice (die) with no dots on his face. Among his close friends he is known as "Hexy", likely short for "Hexahedron". I'll leave it to you to figure out how he got these names.
- You asked about "hiding in 2-D space". As far as I can discover the idea is that when "block heads" (prisms) escape from prison (3-D space) they try to hide from the police by camouflaging themselves in 2-D space (paper). For example, the cube or hexahedron is a rather famous prism who can hide in 2-D space (a sheet of paper is a 2-D space since it has the two dimensions of length and width). When Hexy hides in 2-D space he is of course rather flat and does not look like a BlockHead at all. So police have to get good at seeing Hexahedron in the flat if they are to capture him. Here are a couple of the 2-D disguises I was able to find. I presume that the Warden wants you to find every disguise possible in 2-D.



- Just because you're a good buddy I'll also share some intelligence with you. The 2-D disguises are called "Nets". I was rather amused by this term. Are you?
- To test whether the Net is a real disguise, cut it out with scissors and then fold it up to see if you get BlockHead.
- Good luck in your search for disguises.

Happy hunting as they say (when I was a Cub Scout)

Matsumoto

Federal Penitentiary, Ottawa
OFFICE OF THE WARDEN

1993 09 22 17 45

To Agent Bagdonovich
Fr Warden McCallister
Re Your Fax 234 443 - Poster forms

Dear Agent Bagdonovich,

The Warden is no longer in his office (it is 5:45 pm). He has asked me to respond to your request for more information regarding the posters. I am therefore faxing to you immediately two items:

1. A poster form for BlockHead Hexahedron.
2. A net form we have found useful for designing and testing posters. What we do is draw a net we think might be a disguise. Then we cut it out and fold it up to see if it is Hexy. Sometimes we tape him up so that he can't sneak back into 2-D.

By the way, had you figured out that Hexahedron was often called "Hexy" or in your detective jargon: "AKA Hexy"?

The Warden sends his greetings.

So do I.

Let me know if you need any more information.

Regardez vous,



francois
Secretary to the Warden

F. Jay McCallister, Chief Warden

FAX

**THE OFFICE OF THE WARDEN
Federal Penitentiary**

09 22 18

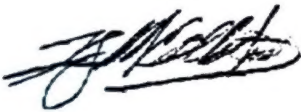
New developments further to our contract for Posters:

1. Hexahedron was spotted in a MacDonald's restaurant collecting straws.
2. Reliable witnesses claim that they saw him with some string and they swear he was trying to put himself into the string and straws.
3. This seems to be a new twist from paper to straws. Apparently Hexy is now trying to hide himself in straws and string.

Consequently:

Please also submit with your Wanted Posters one disguise showing how Hexahedron hides himself in straws and string.

Much Thanks



francois for

Warden McCallister

ps. Just as this is being FAXED we received a bulletin from a Mr. Matsumoto in Calgary. He says that Hexahedron is also hiding in something he called "Origami" (do you think "origami" is just another word (Alias) for "Hexahedron" or is this just a wild goose chase?) Anyway my secretary, francois, (please excuse the small "f" she uses - it doesn't bother me, really) has done some research into origami and I'm faxing it too (2 pages). Make of it what you will.

ps. I think Matsumoto is onto something. francois.

Case 3-2:

Capturing BlockHeads

CONTRACT

1993 09 29

To: Lone Star Detecting and Investigating Inc.
From: Minwell Smart, Director
Federal Intelligence Bureau
RE: *Contract for escaped BlockHeads*

Thank you so much for developing a procedure for capturing BlockHeads. Your idea of capturing BlockHeads in a Net was a breath of fresh air. How did you ever think of it? Many of our investigators are rather stodgy and being creative is not something that comes easy for them.

Several BlockHeads have escaped from Federal Prism and are still on the loose. We think your new Net Technique of capture may allow you to capture them quickly. Therefore, I would like to officially offer you the assignment of using your Net Technique to capture the remaining escapees.

We are enclosing some nets for you to use in capturing the remaining escapees.

Should you accept this contract we should like you to:

- capture these new escaped BlockHeads by cutting, folding and taping.
- come up with a good description of each suspect.
- provide an accurate name for each.

Sincerely,



M. Smart

Note: We are only sending you the NETS that have been worked out by our agents so far. There are other escaped BlockHeads for whom we have not as yet developed NETS. You could help us further by developing nets and using them to capture other BlockHeads as well.



Date: 93/ 09/ 23/ 09/ 06
yy mo da h min

Place: Agency

Case: "Capturing BlockHeads for the FIB"

- Consult case 3-1 to refresh memory about BlockHeads.
- Retrieve the memo sent to FIB re "Net Techniques". Who in the agency developed it?
- 09 23 12 21 11 NETS from Director Smart. Get to them first thing in the morning with fresh mind.
- 09 24 11 32 FAX from Director Smart - wants a quick way to tell a pyramid from a prism. Why the need for speed? Probably cruising in patrol cars instead of walking the beat. Too bad.
- 09 24 23 56 No time to work on those NETS. Must ask for a partner again.



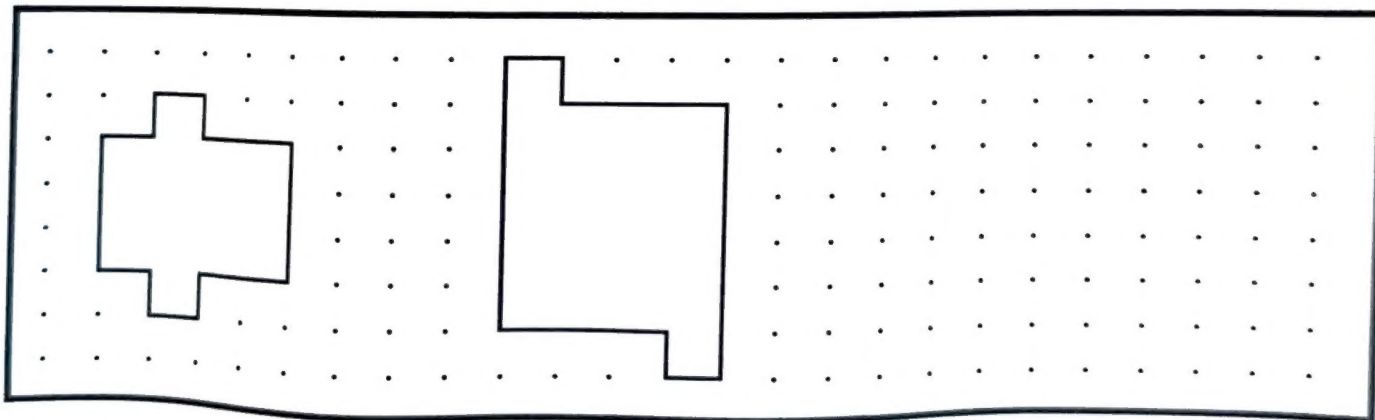
1993 06 28

To: Minwell Smart Head
Federal Intelligence Bureau
From: Lone Star Detecting and Investigating Inc.
RE: "NET TECHNOLOGY" - for Capturing BlockHeads

Lone Star Detecting and Investigating Inc. has developed a new technique for capturing BlockHeads. Actually, it is a very simple method. Instead of trying to find the BlockHeads by tracking them down with search dogs, we use NETS.

To illustrate our technology, consider a recent escapee - the so-called "Square-based Prism".

First we create a NET (NET is short for Network, a network of dots). Notice that a square-based prism has a square base. Also four rectangular sides. And a "top" which is also a square just like the base. We draw these faces in the Network of dots. For example:



Then we cut him out of the NET, fold him up into a solid, and "tape" him up. He is then ready for delivery back to prism.

We would appreciate any comments you may have about our NET Technology. Would you find it useful?

Intelligently,

Charlie Channing, Director of Investigations

FAX

1993 09 18

To Lone Star Agencies
From Director Smart, FIB
Re Picking up BlockHeads

Local police constables around the nation are on the lookout for escaped BlockHeads. They often have to spot a prism or pyramid in just a split second. Can you develop some techniques they can use so that in *one quick glance* they can tell a prism from a pyramid? What should they be looking for? How can they see the difference in a flash?

Your advice on this matter is urgently requested. BlockHeads still roam the streets of North America.



M. Smart, Director FIB

Case 3-3:

Cosmetic Surgery

Investigation Notes



Agent Bagdonovich

Date: 93/ 09/ 23/ 07/ 16
yy mo da h min

Place: AgencyCase: "Cosmetic Surgery"

- *Tangram FlatHeads. Cosmetic Surgery? On Tangrams? Med School here I come.*

- 09 23 09 15 *I can't believe it! The Chief actually wants me to take a crash course in cosmetic surgery! How about Hairdressing 101 instead?*

Reminder: *** Pick up instructional package at office.

- 09 23 12 21 *Finding this cosmetic surgery interesting - there's quite a story behind it. Maybe this is my calling! Ask Chief what Cases this stuff is for.*

- 09 24 11 32 *Reminder: *** What Case to use this stuff on? Ask Chief.*

- 09 24 23 56 *Detective Romanofsky from Transylvania! Sounds like Frankenstein! Maybe I get to use my cosmetic surgery on him. Ha.*

- 09 25 08 00 *Finally a chance to use my cosmetic knowledge. What suggestions to make to Chief? A banner! Yes a banner. Send memo to Chief.*

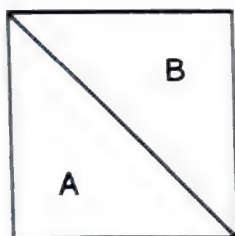
Investigators in Training Series: Quick Courses for Busy Detectives

Quick Training - 1: Cosmetic Surgery on TanGram FlatHeads

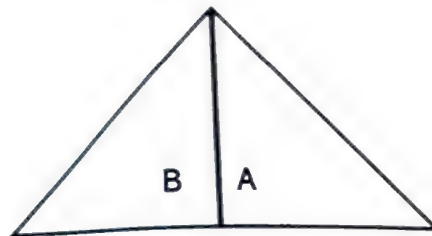
1. You may know that one of the Federal Prisons is called TanGram Prison. Its inmates are TanGrams. TanGrams are flat and so they are AKA FlatHeads. FlatHeads have become masters of covering (improving) their looks through *Cosmetic Surgery*. By changing their looks, they try to avoid being recaptured. This training package reveals many of their secrets. Agents who know these secrets can recognize these FlatHeads even in the dark.
2. In this training package you will learn the special *procedures* TANGRAM FLATHEADS use to disguise themselves. What they do is perform *cosmetic surgery* upon themselves in order to change their looks. This sounds more gruesome than it is.
3. In cosmetic surgery, the surgeon uses a scalpel to make a cut. This is called "performing a *dissection*." FlatHeads just use a pair of scissors so as to avoid attracting attention. In #5 below you can see a "SquareHead" who has dissected himself into two "TriangleHeads".
4. After doing a dissection, the pieces can then be moved elsewhere. The surgeon uses three and only three kinds of *motions* to move pieces:
 - flipping the piece over,
 - turning the piece around,
 - sliding the piece.
5. Below is a piece of cosmetic surgery done to make the square look like a triangle.



Square



Dissect square into two triangles A and B



Rotate (turn) triangle B about its top left point so tht it ends up just left of triangle A.

Practice:

1. Try your hand at turning a square into a triangle. Squares for this purpose are included in the training package.
2. Choose a paper triangle from the TANGRAM FLATHEADS set. Use your surgical skills to disguise it as a square. Be sure to identify clearly the operations (dissecting, flipping, turning, sliding) you used in doing your surgery.
3. Now test your surgical powers by disguising a triangle as a parallelogram.

Training Tools:

1. scissors
2. TOOLS MASTER 3-3A1: TANGRAM FLATHEADS

Quick Training - 2: Cosmetic Surgery on Other FlatHeads

1. In the olden days FlatHead cosmetic surgeons often specialized in certain kinds of patients. Some specialized on "cosmetizing" triangles, others on squares, and still others on rectangles, and parallelograms.
"Hey Harry, what are you into these days?"
"Not much really, just trapezoids."
"Is that right?"
"Getting much business?"
"No, not much."
2. One dark night in October, just before Halloween and after seeing a pumpkin being turned into a lantern with just a knife, a great discovery was made by an inquisitive investigator. Her discovery made all these specializations redundant. Specialized cosmetic surgeons could be seen in unemployment lines around the country.
3. The discovery made by this investigator was this. She discovered that a triangle, a square, a rectangle, a parallelogram and even the trapezoid could each be changed into one another by *general* cosmetic surgery. Cosmetic surgeons everywhere were flabbergasted! No specialized techniques were necessary.
3. Verify this discovery for yourself by changing a parallelogram into a trapezoid, a square into a rectangle, or a change of your choice. Use only the 4 general procedures:
 - *dissection*,
 - *flipping*,
 - *turning*,
 - *sliding*.These are all that are needed.
4. When you have successfully changed one of the shapes into another, carefully describe your procedures by listing all of them in the order you used them. Your description should enable another medical detective to perform the same operation without having to think it out.

Training Tools:

1. A template to make paper triangles, squares, rectangles, parallelograms, trapezoids. (Your POLYGON CUTOUTS may be traced.)
2. pair of scissors or paper cutter.
3. tape (surgical tape will do).

Quick Training - 3 *About Face*

1. Because of the great discovery reported in Quick Training - 2, the Specialized Cosmetic Surgeons no longer had any specialized work to do. Rather than applying for unemployment insurance, some began looking for new ways of specializing. Some FlatHeads were heard to mumble derisively, "Once a specialist, always a specialist."
2. Some Surgeons began doing a lot of flipping. These new specialists would cosmetize by using only dissecting and flipping.
3. To get a feel for the type of work done by these "Flippers" see what shapes a triangle can be changed into using only dissecting and flipping.

Training Tools:

1. Tools Master 3-3A2: Template to make paper triangles
2. pair of scissors or paper cutter.
3. tape (surgical tape will do).

Quick Training - 4: *Round and Round*

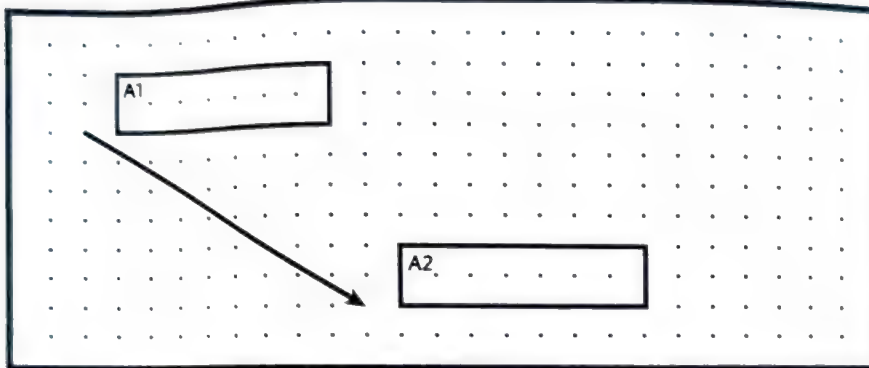
1. Several years after *Flippers* had become well known, they gave themselves a technical name because flippers sounded almost flippant. After a great debate (and many hard feelings) they agreed on the name, *Reflectors*. All Flippers agreed that *Reflectors* was a more appropriate name. They also said that what they specialized in was *Reflections*.
2. Because of the fantastic success of Flippers (sorry, Reflectors) other surgeons began looking for other ways to specialize. They said, "Turns are as important as Flips. We shall specialize in Turns. And we won't give ourselves grand names like those pompous Reflectors!"
3. What kind of work would these new "Turn" specialists do on a triangle?
4. What shapes could they "turn" a triangle into?
5. What technical name might they adopt for themselves if they took themselves seriously!

Investigation Tools:

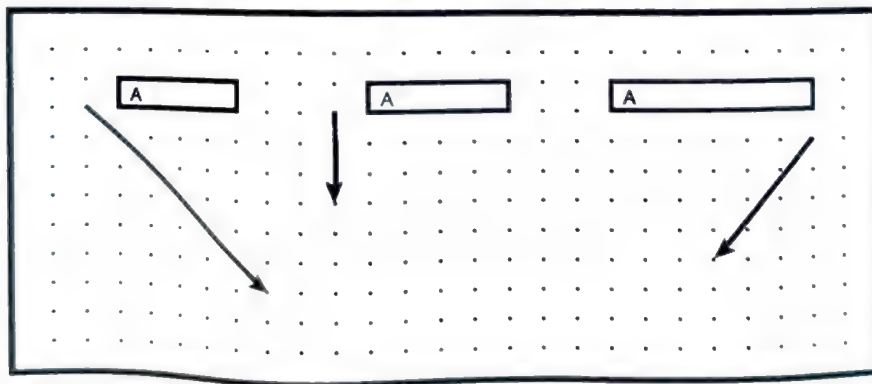
1. paper triangles (use another copy of TOOLS MASTER 3-3A2 if more are needed).
2. pair of scissors or paper cutter.
3. tape (surgical tape will do).

Quick Training - 5: Sliding into Disguise

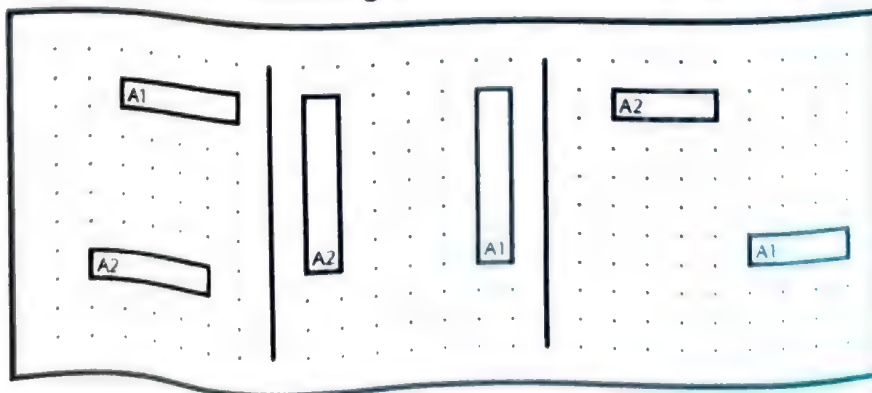
1. It was not a day after the first Turn Specialist graduated from the Turn School of Advanced Cosmetics, that several universities began advertising a new specialty - they called it Slide Technology. They would use only dissections and slides.
2. Several months later, Slide Technology became known as Translation Technology. How would a translation technologist slide a parallelogram into a rectangle? These specialists reveled in big words. Some were heard to say, "I can flip a slide into a translation."
3. Detective Romanofsky from Transylvania, a specialist in Translation Technology invented a special code for describing slides - He used arrows. For example, if Detective Romanofsky were given Rectangle A and an arrow as shown in the diagram, he would slide Rectangle A1 into the position of Rectangle A2.



4. Investigate to find out how Detective Romanofsky's arrow code works. Then see if you can perform the slides indicated by the arrow codes by sliding Rectangle A into a new position.



5. Test out your understanding of the arrow code by drawing an arrow for the three slides shown.



MEMO

1993 09 25 07 20

To Agent Bagdonovich
From Charlie Channing, Director of Investigations
Subject Cosmetic Surgery

Received word from FlatHead Penitentiary 1993 09 23 11 30.

There has been a surge in the number of FlatHead doing cosmetic surgery on themselves. Each FlatHead thinks he can escape if he can be clever enough to fool prison guards with a new look.

The Warden wants to show these FlatHeads that he knows all about their surgical techniques. He said, "If they know they can't fool us, they may quit trying."

So the Warden wants us to tell him what he can do to convince the FlatHeads that they can't fool the guards anymore.

Any suggestions?

A handwritten signature in cursive script, appearing to read "Charlie Channing". The signature is written in dark ink and is positioned below the main body of the memo.

Memo



1993 09 25 09 20

To Charlie Channing, Director of Investigations
From Agent Bagdonovich
Subject Your memo of 1993 09 25 07 20

I've got a fantastic idea even if I have to say so myself. This is what we do.

We make a big banner. We start with SquareHead, change him into TriangleHead, then change him into RectoHead, and on and on we go. We will show almost any FlatHead somewhere in the Banner.

They will see themselves somewhere in the Banner and know we know all about their tricks. What do you think?

A handwritten signature in black ink, appearing to read "Bagdonovich".

Agent Bagdonovich

A handwritten note on a tilted rectangular card. The text is written in black ink and reads: "Baggy, A great idea! Go to it".

Baggy,
A great idea!
Go to it

Charlie

Case 3-4:

Mutilated Posters

Federal Penitentiary Office of the Warden

93 09 25

To: Lone Star Detectives & Investigators Inc.
From: Chief Warden McCallister
Re: Mutilated Posters

Thank you so very much for taking on the task of creating Wanted Posters for Hexahedron. We look forward to receiving your work.


In the meantime I desperately need your help again. A set of "mutilated" posters of the "James Gang", the "Gifford Gang" and the "GeoGang" has been returned to our office. We now need to reconstruct the missing parts of each poster. Your Chief Detective, Charlie Channing assured me that your agency is in possession of Ultra-Red Sensing Technology (URST) and that each of the agents is masterful in its use. (Some people call it MIRA because it is like a special mirror, special in that you can also look right through it!)

Our institution does not yet have URST. We need these posters to be restored by experts in URST.

1. The posters for the Gifford Gang have been mutilated. The right hand side of each body has been torn off. Assignment: restore with URST.
2. As indicated in the memo from Warden McCallister, the posters for the Geo-Gang have been mutilated. The right side of each shape has been torn off. Assignment: restore with URST.
3. A poster for the hexagon was apparently mutilated. Again half of it was shorn off. We know that it was torn off in such a way that the part torn off would match the part shown in an URST. One of the ways is shown on the poster. Others are missing. Can you restore them?

Please send me your restored posters as soon as possible.

My thanks in advance.



F. Jay McCallister

Investigation Notes



Agent Bagdonovich

Date: 03/ 09/ 25/ 11/ 05
yy mo da h min

Place: Agency

Case: "Mutilated Posters"

- URST- "Ultra Red Sensing Technology" - when did we get it? Better bone up on it before the Chief finds out I don't know how to use it. Think I can figure out how to use it on the posters. Works a bit like a mirror. See into it. See through it. Both at the same time. Someone's using the old noggin.
- 09251310 Must check to see if the mutilated posters have arrived.

Case 3-5:

Fastidious Frank Phelon

Investigation Notes



Agent Bagdonovich

Date: 93/ 09/ 26/ 10/ 05
yy mo da h min

Place: London

Case: "Fastidious Frank Phelon"

- *Frank Jr. - a nice kid.*
- *Hunch - modus operandi of Frank Sr is the key.*

MEMO

1993 09 27

To Lone Star Detective Agency
From Frank Phelon Jr.
Re *Clearing My Father Frank Phelon Sr. (AKA "Fastidious Frank")*

This memo is to confirm our telephone conversation in which your agency agreed to take on the case of clearing my father's name. I know we both agree that my father was likely falsely convicted on three different counts. Although my father passed away last year, it is very important to me that his name be cleared.

I have described the three cases in which he was falsely convicted, each on a separate sheet. I have also described some of my father's experiences when he was in elementary school. I think his problems started early.

Thank you for agreeing to take on these cases. What I want is your best set of arguments that my Father did not commit the crimes he was charged with.

I hope I have described the cases well enough. My English is not too good but like my Father I didn't find school a good place for me.

Remember one thing: My father was always true to his *modus operandi*. Even the judge admitted this.

I can be reached at Box S56-45 at Postal Station 51.

Will be in contact.

FF

Frank Jr.

PS

I also enclose some background on my father as gathered from Scotland Yard.

Conducting Investigations Case 3-5C

Information Search #34-3842 - Frank Phelon AKA Fastidious Frank

Unconfirmed extracts from the Notebook of Detective Shanagon of Scotland Yard circa 1957-1968.

Some crooks don't like to step on cracks (or else they'll break their mothers backs). Others don't like to break mirrors (or else they'll get seven years - in jail of course) Fastidious Frank was a fanatical Phelon who when doing a robbery would never never steal anything that was "even" (or else the police would get even!).

He would only take things that measured an "odd" number of units. If something was 34 mm in length he would not take it even if it was made of gold! But he would take a silver chain that was 33 mm long. His mates always told him he was crazy to be so fastidious, and so his Alias "Fastidious Frank". Everyone knew he was always "true" to his "modus operandi". He claimed that he always lived up to his name - Fastidious Frank, the felon who was always frankly fastidious.

The only thing that ever changed was his degree of fastidiousness. Sometimes he was *fanatically* fastidious and paid attention to millimetres.

At other times he was only *frankly* fastidious and centimetres were good enough for him.

He even committed some crimes which became known as the "Metre Stick Capers" in which metres were close enough. At such times he was called *mildly* fastidious Frank. He once tried to steal London Bridge, but being in a fastidious mood, ran out of time measuring! This case became known as the "Case of the Unfinished Metreage".

Scotland Yard finally did put Fastidious Frank behind bars. But close friends always maintained that they got the wrong man. Everyone, including the judge, agreed on one thing - Fastidious Frank was always true to his modus operandi.

Frank had one son. No one really knew much about his boy except that he was called Frank Jr. Scotland Yard has no criminal record for Frank Jr. but they are keeping a close eye on him. They are strongly suspicious that Frank Jr. was the MasterMind behind several recent crimes but they have not been able to pin anything on him.

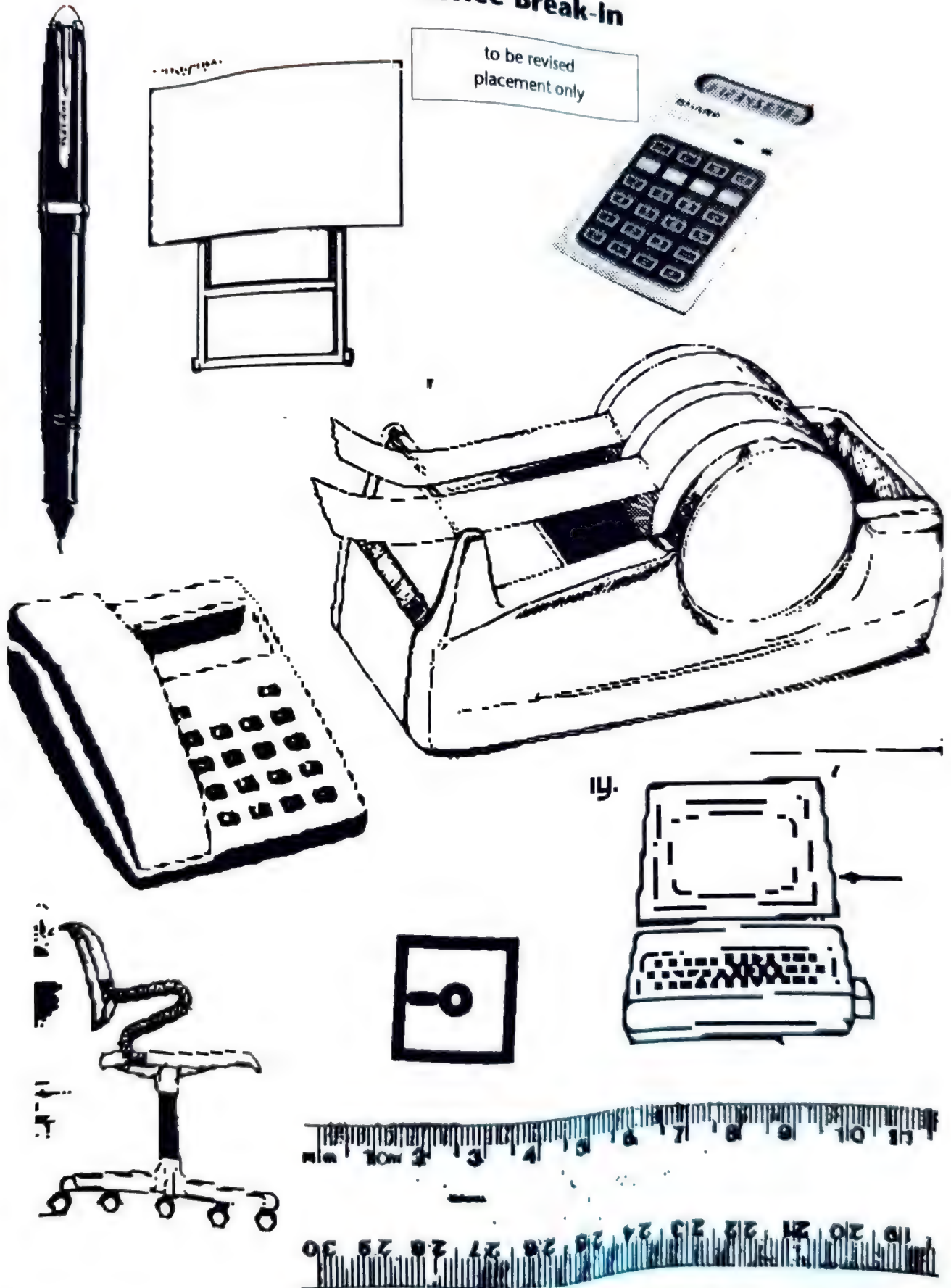
Case 1

Fanatically Fastidious Frank Phelon

1. I really don't like the name Scotland Yard gave to this case but I'll use it because all the Scotland Yard Detectives used this name.
2. When involved in a robbery, my father, Fastidious Frank, would only take things that were an "odd" number in length. This case is one of his "fanatically" fastidious cases: He paid attention to even the smallest of things - mm even.
3. Exhibit 3-5C1: "Office Break-in" shows a picture of the property stolen from an office break-in. I have it on good information that the security alarm went off at 1957 09 22 00 01 10, just 1 minute and 10 seconds after midnight. Scotland Yard picked Frank up 10.5 blocks away from the office break-in at 1957 09 22 00 23 12. He was convicted on circumstantial evidence. I think the investigation overlooked some important information that is contained in the Exhibit. How can I show that my Father didn't do it?

Exhibit 1 Office Break-In

to be revised
placement only



Case 2

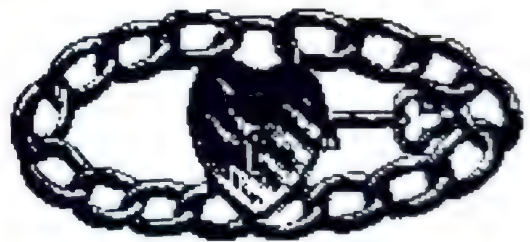
Frankly Fastidious Frank

1. When he wasn't so fastidious, Frank would overlook millimetres. At such times I often heard him muttering to himself, "Centimetres are good enough for me". Or, "Don't give me 10 mm, give me a cm". He only paid attention to mm when he was fanatically fastidious.
2. One night when my father wasn't in a fastidious mood, the security alarm at a jewelry store went off at 1958 12 25 00 01 02. Police sent out an APB for Frank and he was picked up, wearing a Santa Claus outfit. He was carrying a sack which did contain some expensive presents. But he was always good to his friends at Christmas time. Some of the presents were unwrapped but he claimed he was going to wrap them later. Police Exhibit 3-5D1: Jewels Jewels Jewels shows a picture of the stolen property. I know My Father didn't do this one either but how can I prove it?

Exhibit 2

Jewels Jewels Jewels

to be revised
placement only



Case 3

Milk Trucks

1. On the night he failed to finish stealing London Bridge (I think he was actually putting one over on Scotland Yard - he was pretending to steal the bridge just to get a rise out of the Yard), Frank vowed he would visit Paris. Here some of his "friends" dared him to steal a milk truck!
2. One of the Dairies in Paris had six different types of milk trucks for different kinds of routes. Frank knew that he would become violently ill if he were to get into a truck whose rated capacity was an even number of kilograms. As luck would have it, each truck had a "flatbed" for carrying the milk. They also had a diagram showing how many 1L containers could be arranged on the truck deck. "Facsimiles" of the six diagrams are shown in Police Exhibit 3-5E1: FAX of Milk Carton Arrangements. I don't think my Father could have stolen any of those trucks.
3. Later on during the week, Frank had an uncontrollable urge to visit the dairy again. This time he felt better about his chances. He could feel it in his bones that milk "by the tonne" was more "compatible" with his sense of well-being. He hoped that some of the trucks would be compatible by the tonne. He examined the diagrams again. With his trusty calculator he computed the capacity of each truck to the nearest tonne. He was later convicted of stealing one of the trucks. I know he didn't do it but what evidence could I offer?

Exhibit 3
FAX of Milk Carton Arrangements

60 x 100

23 x 90

53 x 134

50 x 100

44 x 123

73 x 136

Case 4

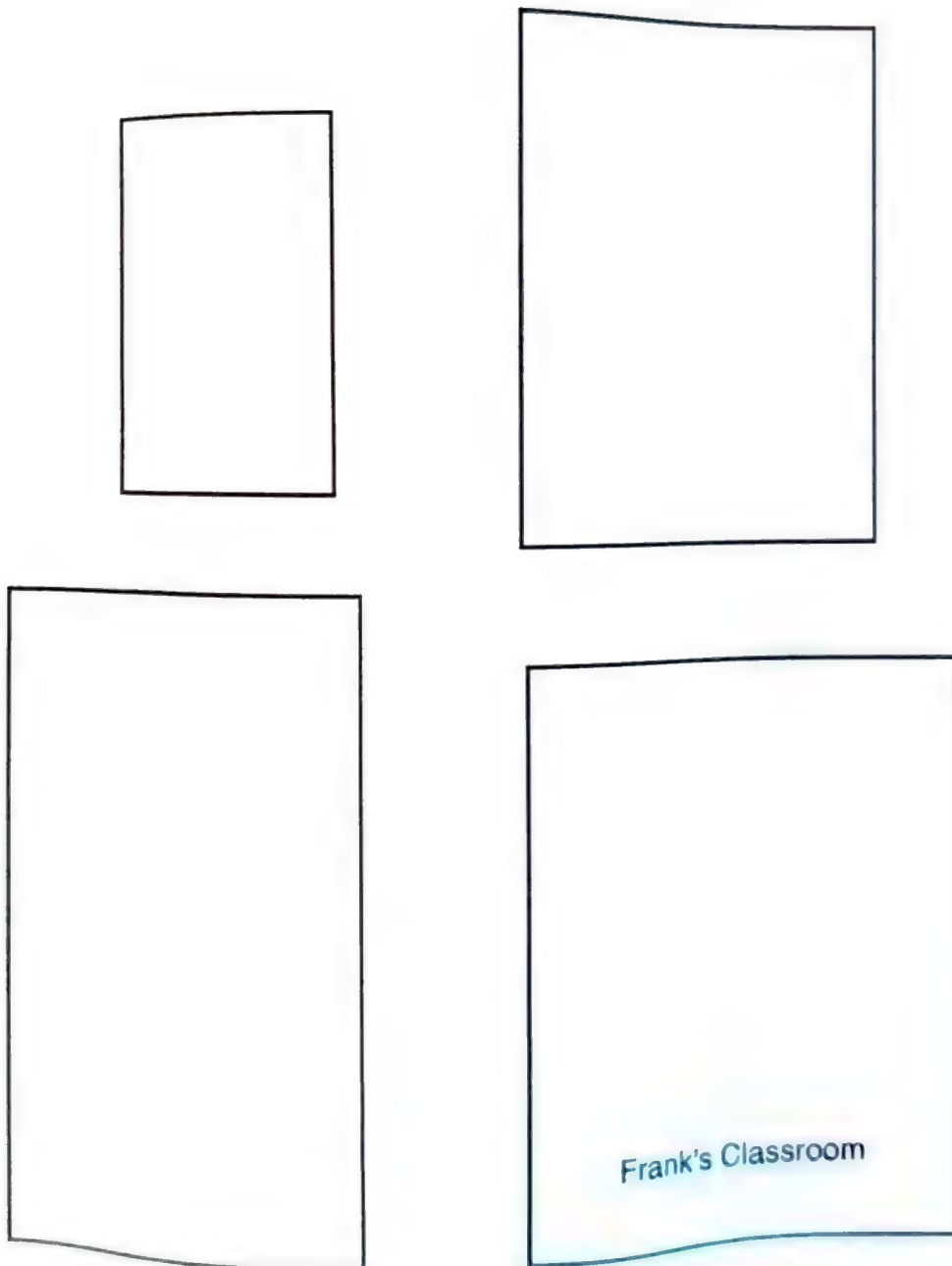
Mildly Fastidious Frank

(School Days School Days)

1. When he was a boy, my father actually went to school. Records show that he was fast becoming fastidious even in grade school. He often told me of his grade 5 teacher, Ms. Groach, who he heard talking authoritatively to other teachers about his "fastidious disability". She told others that it was all just an act to get his own way. She even wrote in his report card that my father said the room made him feel "very uncomfortable, boxed in and edgy." He told her that the room wasn't "odd enough" for him. He went on to say that "It's a little too narrow and a little too long." But Ms. Groach had no idea what he meant and dismissed his request to be moved into another class as mere "impetuosity". Both she and Frank had a terrible year.
2. My Father desperately wanted to move to another room in the school. I have obtained blueprints showing scale drawings of the four classrooms that were used for grade five classes that year. Frank's room is identified. If Frank had been moved to another room maybe his life of crime could have been prevented! I often wondered whether any of the other rooms were more "compatible" with my father's fastidiousness which was quite mild back in those days. What can you find out?

Exhibit 4

Classrooms for Frank?



Vignette

Scotland Yard

During the early 1800's the London police were headquartered in a building at 4 Whitehall Place. The rear of the building overlooked a narrow street called Scotland Yard, and perhaps because the back entrance to the building was used, officers began using the latter name in preference to the official address. In a way, Scotland Yard was an alias: "4 Whitehall Place" AKA "Scotland Yard".

The police force grew and a new structure was needed. In 1890 New Scotland Yard was opened. Ironically, the granite used to build the new headquarters was quarried by the convicts of Dartmoor Prison.

Today the headquarters of the London Metropolitan Police are in a modern building near the St. James's tube station. But the familiar name — New Scotland Yard — is still used by Londoners.

Case 3-6:

Balanced and Unbalanced Inmates

Federal Penitentiary Office of the Warden

93 09 28

To: Lone Star Detectives & Investigators Inc.
From: Chief Warden McCallister
Re: Balanced and Unbalanced Inmates

As you know, the Federal Penitentiary has just opened a new wing devoted entirely to polygonal prisoners (AKA FlatHeads). We diagnose each FlatHead for balance. Some FlatHeads are "severely unbalanced" while others are only "mildly unbalanced". After diagnosis, we assign each FlatHead to the proper Cell Block to receive individualized treatment.

We have a major problem which I trust you can help us with. The diagnosis for balance can only be scientifically done using Ultra-Red Sensing Technology (AKA URST). I understand that you are in possession of URST and are experts in its use.

To the point:

1. We have just received nine new inmates. Each needs to be assigned to the proper Cell Block but the Penitentiary does not have an URST to help in making the correct diagnosis.
2. You have been contracted to "diagnose" each FlatHead according to his degree of balance. A standard diagnosis consists of:
 - drawing lines of balance (symmetry) on each FlatHead using URST
 - assigning each FlatHead to his proper Cell Block on the basis of these lines.
3. After completing the diagnosis of all nine inmates could you give us your professional opinion as to which Cell Block contains the most unbalanced inmates? The most balanced?

Good Detecting,



Warden McCallister

PS I am enclosing some information on the Cell Block System and how it relates to balance. It should help you in assigning each FlatHead to the proper Cell Block.



Date: 93/ 09/ 28/ 16/ 05
yy mo da h min

Place: Federal Penitentiary

Case: "Diagnosing Balance with URST (AKA MIRA)"

- Another case from the Warden. At least his cases are interesting - unbalanced FlatHeads - What does a balanced one look like?
- URST - "Ultra Red Sensing Technology" - Nobody said this was good for checking out balance. Better look up what we have on URST. Got to start with this.
- 09 28 17 10 Found some training stuff on URST. Looks simple enough. Amazing how URST can be used to check out balance.

Quote I liked: from Backwalter (1984)

"Level-headed - has sound judgment, balanced reasoning" p. 48

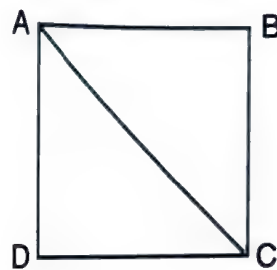
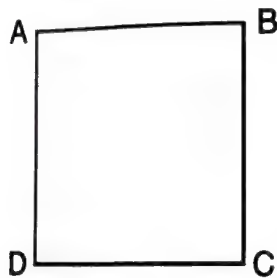
Hum.

Just like some FlatHeads?

Which FlatHead is the most balanced?

Ultra-Red Sensing Technology

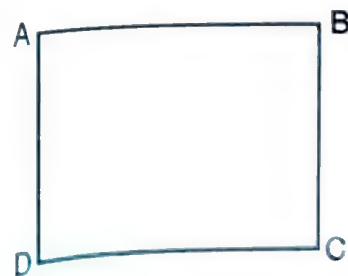
1. A new technology has been developed to detect the lines of balance in a FlatHead. It is called "Ultra-Red Sensing Technology" or URST for short. (Some people call it MIRA because it is like a special mirror, special in that you can also look right through it!).
2. To master the use of URST you will be using it to find the lines of balance for several FlatHeads.
3. Here's how it works. To find a line of balance for a FlatHead, first look at it to see if you can guess along what line it would balance. For example, in the square below, you might guess that a line running from A to C would be a line of balance. By the way, the line from A to C is called "line segment AC".



4. To check your guess, place URST on the square so that its edge is on line segment AC. Now look through URST. Notice how you can see both corner B and corner D in URST. If line AC is a line of balance, then corner D and corner B should fall exactly on top of each other. Do they?
5. Use URST to find and test other lines of balance for "SquareHead". How many other lines of balance does he have?

Training Practice:

1. Find the lines of balance for "RectoHead":



2. Why doesn't "diagonal line" AC work for a rectangle?

Cell Block Design

1. Some FlatHeads are more "balanced" than others. For example "SquareHead" is more balanced than "RectoHead". This is because SquareHead has more lines of balance (AKA lines of symmetry).
2. FlatHeads come in various shapes. Some are very balanced, others are moderately balanced, while some are so awkward they are called "irregular" (potato head as they say!). FlatHead Penitentiary has designed its Cell Block System based on degree of balance. A listing of the Cell Blocks is started. If you can continue the listing you understand our system.

Cell Block #	Amount of Balance or Symmetry
Cell Block 0:	0 lines of symmetry
Cell Block 1:	1 line of symmetry
Cell Block 2	2 lines of symmetry
Cell Block 3:	
Cell Block 4:	
Cell Block 5:	
Cell Block 6:	
Cell Block 7:	
Cell Block 8:	

4. As a Penitentiary Diagnostician to which Cell Block should SquareHead be assigned? What about RectoHead? PentaHead (AKA Pentagon)? HexaHead (AKA Hexagon)? OctaHead?

Case 3-7:

Leaders in FlatHead Gangs

**Federal Intelligence Bureau
Office of the Director**

1993 09 30 08 30

To Lone Star Detectives and Investigators Inc.
From M. Smart
Subject **Leadership Among FlatHead Gangs**

It has come to my attention that some FlatHeads are smarter than others. We have had research studies done showing that:

1. some FlatHeads are bigger than others
2. the bigger the FlatHead the bigger the brain.

But what is not clear to us is this: How can you tell whether one FlatHead is bigger than another? What do you look for?

Now we are interested in these matters of size (intelligence) because we want to capture the leaders of the FlatHead gangs. As far as I know the leaders are the bright ones (just as in my Bureau!). And it is hard to capture the leaders if we don't know how to tell which are brighter (bigger).

I am sending you an exhibit of the notorious "Gang of Seven". We have some suspicions about who is the leader. But we have never been able to identify him/her.

Could you assist us in this most important task by:

1. coming up with a list of just two (2) FlatHeads who may be the leader of the gang.
2. explaining why these two (or just one if you are sure) are the most intelligent.
3. how can you quickly (as in a glance) tell which is biggest?

Looking forward to your findings.



M. Smart, Director



Date: 93/ 10/ 01/ 08/ 45
yy mo da h min

Place: Hat Shop on 5th & Jasper

Case: "Leaders in FlatHead Gangs"

- Exhibit shows FlatHeads with very different shapes; long and thin, bary, pointed, round, square. Which is "biggest"? What should I be looking for? Why kind of big head would have a big brain? A long skinny one? I don't think so.
- A fax from Director Smart. Pick up at agency tonight.
- 10 01 20 30 "One Hat Gang" Interesting. Same size hat but one has a bigger brain. What shape of head would be biggest? How can I decide? Swelled head. Maybe some get a swelled head! No, red herring.
- Hat size - the distance around the head - isn't Hat size AKA perimeter?
- If hat size is "perimeter", what word do we have for "room inside the head"? I wish I hadn't slept so much when I was in school!

FAX

1993 09 28 09 20

To Lone Star Detectives and Investigators Inc.

From M. Smart

Subject **Further Information on FlatHead Gang Leaders**

Two items of further information have come to my attention. They may help you in your investigation.

1. Miracle of all Miracles we have captured the "One Hat Gang" (see exhibit attached). But we don't know who is their leader. Our difficulty is this:
 - The "One Hat Gang" is special because one hat fits all of them. This means that they all have the same size head and yet I am sure that there is a MasterMind among them! Do you see my problem?
 - Let me say this another way. All gang members have the same size head (as far as hat size is concerned -that is, perimeter). And yet, one of them must have the biggest head because one of them is the MasterMind behind all their crimes.

Can you help us solve this dilemma?

2. Presuming that you are able to solve some of these mysteries about head size, I should like to request a Wanted Poster of MasterMind of all Masterminds. Now I can't tell you what MasterMind of all Masterminds looks like (or I'd make the poster myself) but I have one major clue - He/she also can wear the hat of the One Hat Gang! And yet MasterMind is not a member of the One Hat Gang. Isn't this amazing?

I look forward to your report with great anticipation.



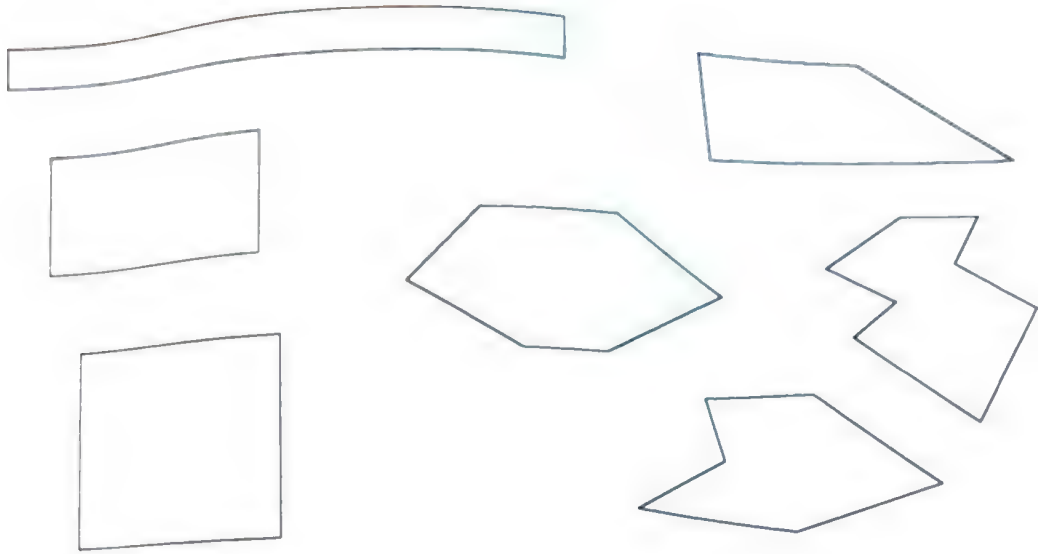
M. Smart, Director FIG

PS

I am also attaching a Poster Form for the MasterMind of all Masterminds.

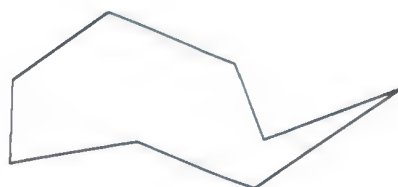
Conducting Investigations Case 3-7C

Gang of Seven



WANTED

The One Hat Gang



Case 3-8:

Tanimals

FAX

1993 09 29

To Director of Investigations
Lone Star Detectives & Investigators Inc.

From Alfred Barhead, Keeper
Animal Prison of Gonzaga

Subject "Tanimals"

News of your work with FlatHeads has reached us here in Gonzaga. We are especially happy to know that your agency has agents who understand FlatHeads because FlatHeads have been creating a big problem here in Gonzaga. Let me explain.

We have an animal prison in Gonzaga. Don't ask me why but we do. We actually take very good care of the animals. Lately, we have been having a real problem with a strange kind of break-out. It all started when some children began smuggling a peculiar plastic material into the prison. I have since found out that these plastics materials are called TanGrams.

The animals would disguise themselves into these TanGrams and then escape unnoticed. Does this sound strange? It did to me so I've enclosed a couple of examples of animals disguised in TanGrams (Exhibit 3-8A1). Take a look at it before you read the rest of this note.

These TanGram animals (AKA Tanimals) are now at large.

What we need now are posters of various Tanimal Outlines (as shown in Exhibit 3-8A1) so that we can recognize the animals when they are disguised in plastic.

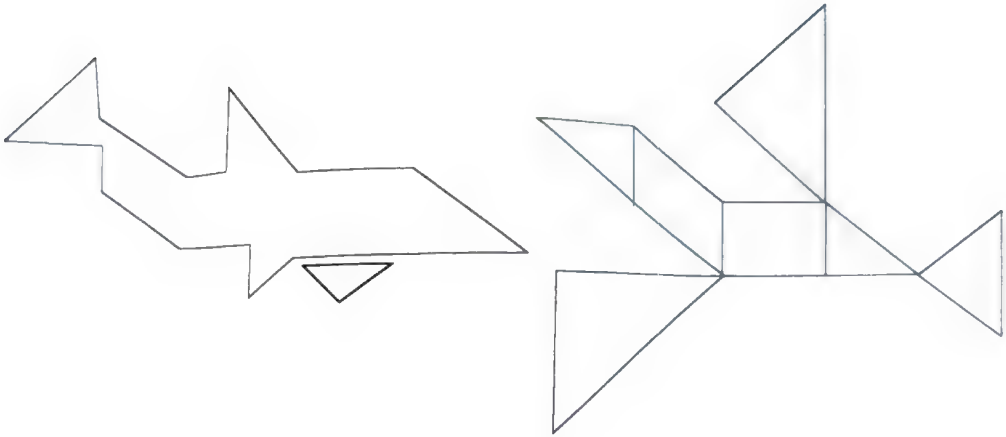
Can you help us out? Please send us only "verified" posters. What I mean is that if one agent makes a Tanimal Outline, please have another agent verify it by making it with TanGrams.

Thanks for taking on this case.



A. Barhead
Keeper of the Prison

Two TanGram Animals



Investigation Notes



Agent Bagdonovich

Date: 93/ 10/ 02/ 11/ 05
yy mo da h min

Place: SPCA

Case: "Animal Posters"

- 09 10 02 12 30 No time to work on this case. I wonder what an animal prison is called?

Case 3-9:

Cover-up Caper

**Federal Penitentiary
Ottawa**

1993 10 02 09 00

To: Lone Star Detecting and Investigating Inc.

From: F. Jay McCallister, Chief Warden
Federal Penitentiary, Ottawa

RE: Cover-up Caper

Thanks again for taking on the contract for making Wanted Posters for Hexahedron.

Another problem has just come to my attention. It is this.

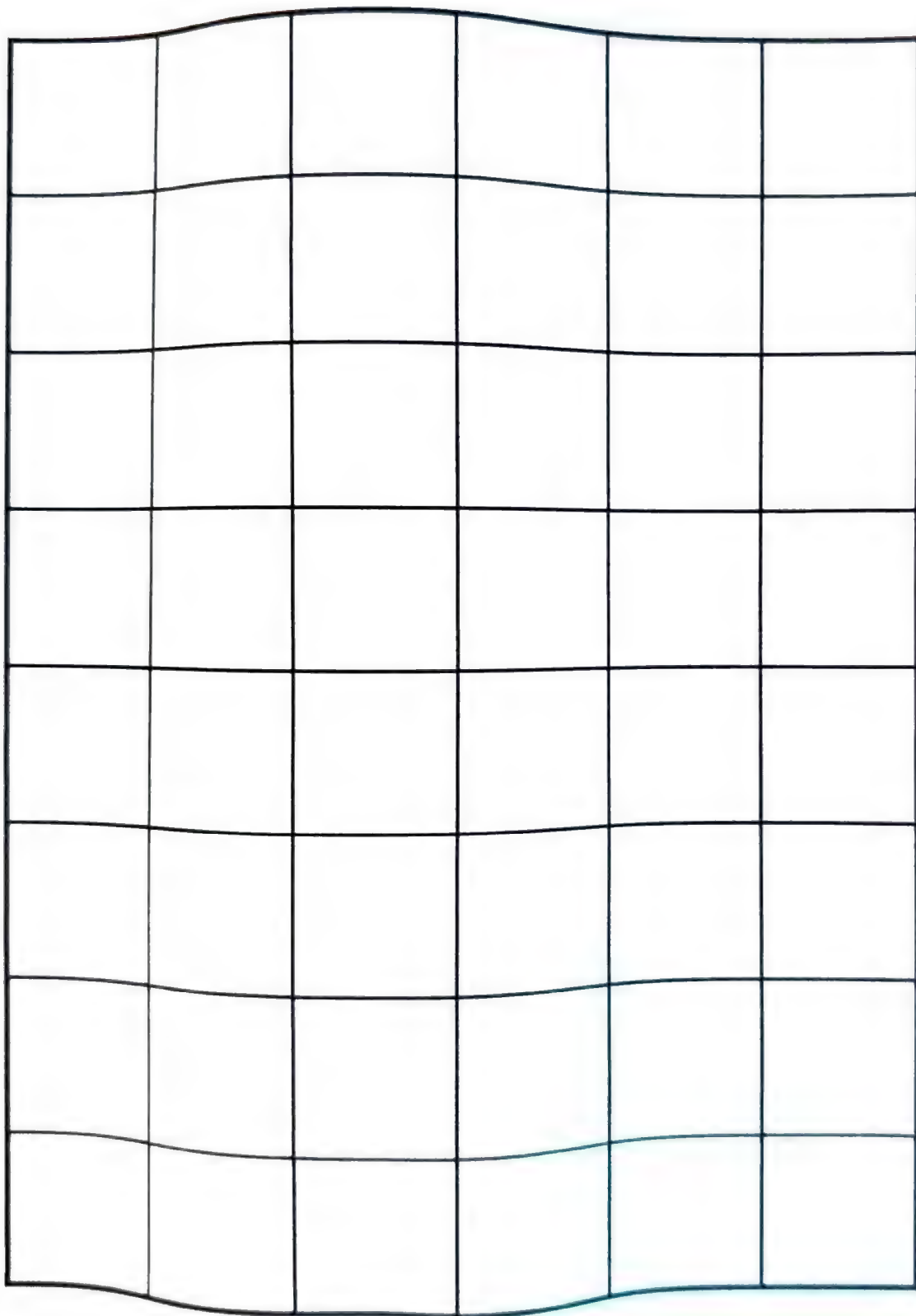
1. At several of the major Post Offices where Wanted Posters are on display a strange activity has begun happening. Within a few days of putting up a poster of a BlockHead, it gets covered over by little pieces of paper. The poster is completely covered up.
2. Preliminary investigations showed that:
 - These are not pranks done by juveniles.
 - The pieces of paper are not just any little pieces of paper. They are special but in what way we don't know.
 - A video camera set up in one of the post offices caught part of the action. There was kind of a swirl, almost like a whirlwind. Pieces of paper all the same size plopped themselves on the poster. It happened very fast and very precisely. Amazingly, there were precisely enough pieces of paper to cover up the entire poster. No pieces were left over and none of the poster was left uncovered. (Copy of covered poster enclosed).
 - We think that these pieces of paper are almost intelligent. Its like they have it all figured out before they get there! How is it that exactly the number of pieces show up that are needed to exactly cover the poster? This is our mystery.
3. Can you solve this case for us? We need the results as soon as possible so that we can make plans to overcome "Operation Cover-Up".

Please feel free to contact me for further information if needed.



F. J. McCallister, Warden

photocopy of Covered Poster





Date: 93/ 10/ 03/ 08/
yy mo da h min

45

Place: Federal PrisonCase: "Cover Up Caper"

- *I think I've got it! This is the work of the FlatHeads! Must be trying to help out their BlockHead cousins. How can I explain this to the Warden?*
- *How do they know exactly how many FlatHeads to send? Do they do reconnaissance? What kind? (Better not use this word - the Warden will think I'm just trying to impress him).*
- *93 10 03 09 00 The sample poster shows all the FlatHeads were the same size, and all SquareHeads. Looks like the SquareHead of the Pattern Block set. How many did it take? Looks like 48. A size 48 cover job - 48 squares. How did they know it would be exactly 48?*
- *93 10 03 10 21 Ask francois to send me samples of poster sizes. Study them to see how FlatHeads can figure out ahead of time how many are needed to do a complete cover job.*

Sample Posters

6 cm x 9 cm

10 cm x 12 cm

7 cm x 8 cm

11 cm x 11 cm

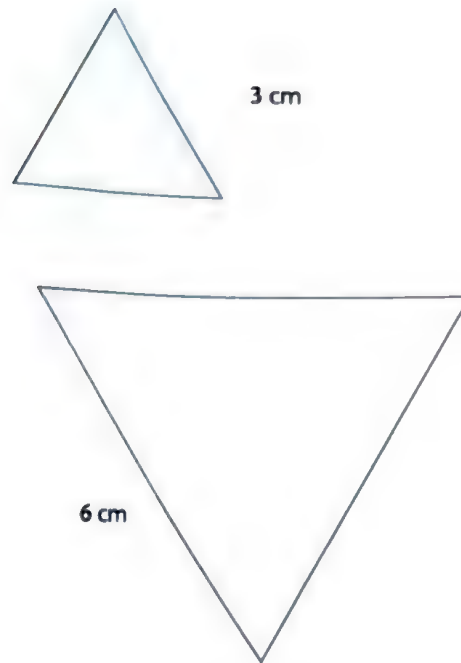
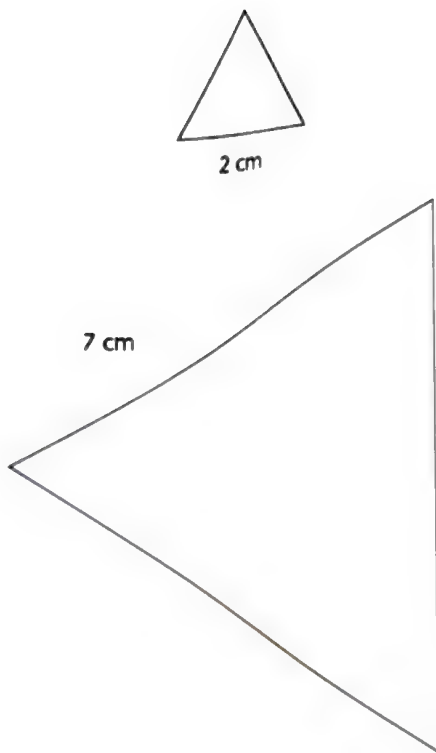
Dear Detective Bogdonovich,
For these size posters it often
happens that the cover-up is done
by pieces of this size:



francois

francois

Sample Posters (continued)



Agent Bogdonovich,

The cover pieces are usually like this:



Is this what you wanted?

francois

francois

Case 3-10:

Guns and Bullets

McKenzie Elementary School

September 23, 1993

Lone Star Detectives and Investigators Inc.

No Investigation too Big or too small

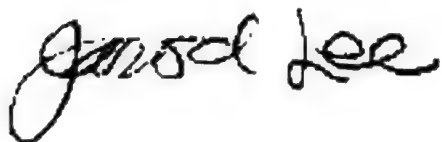
Dear Mr. Detective,

I am a student in grade five at McKenzie Elementary. My teacher, Ms Wesson, is teaching us all about detectives but I am sure that you know much more than any of us, Right? We are working on some tricky cases. Mine is one about bullets. Actually, it is about murder but the murder weapon is a gun and it fires a certain kind of bullets.

The evidence shows that there were actually three guns involved and I've got to sort them out. What I need is some sort of way of identifying bullets. Me and my partners have decided that if we had a chart that shows various bullets and the guns that fire them, we could then solve the case.

If you don't mind we would like the chart in metric. That's because we have found some information but it is in inches and stuff like that, but our case has a bunch of metric sizes. You know, millimetres, centimetres and words like that.

And if you have time could you explain what a 38 Smith & Wesson is? What does the 38 stand for? Also a "44 Magnum"? And a 270? And a "Thirty-ought-six"?



Yours truly,

Jarod Lee



1993 09 27

Dear Jarod,

Thank you for showing interest in detective work. Its not every day that we hear from an up-and-coming detective! I'm sure you and your class are doing some clever and creative work on your cases.

I would be glad to take on your case. And because we have so many clients who pay us good money to work on their cases, I am going to provide our services free of charge. Our contribution to the community, so to speak.

We have just the man for your case - Agent Bagdonovich. He really likes kids. And he is also a real expert on guns. He even wrote a small book about guns a few years back. I'm sure he'll look forward to working on your case.

If you have any further information you think we need please do not hesitate to call me.

In the meantime, happy detecting!

Detectingly,

Charlie Channing

Director of Investigations

PS

Please give my regards to Ms. Wesson. I think she was in grade 3 when I was in grade 5 many years ago.

Investigation Notes



Agent Bagdonovich

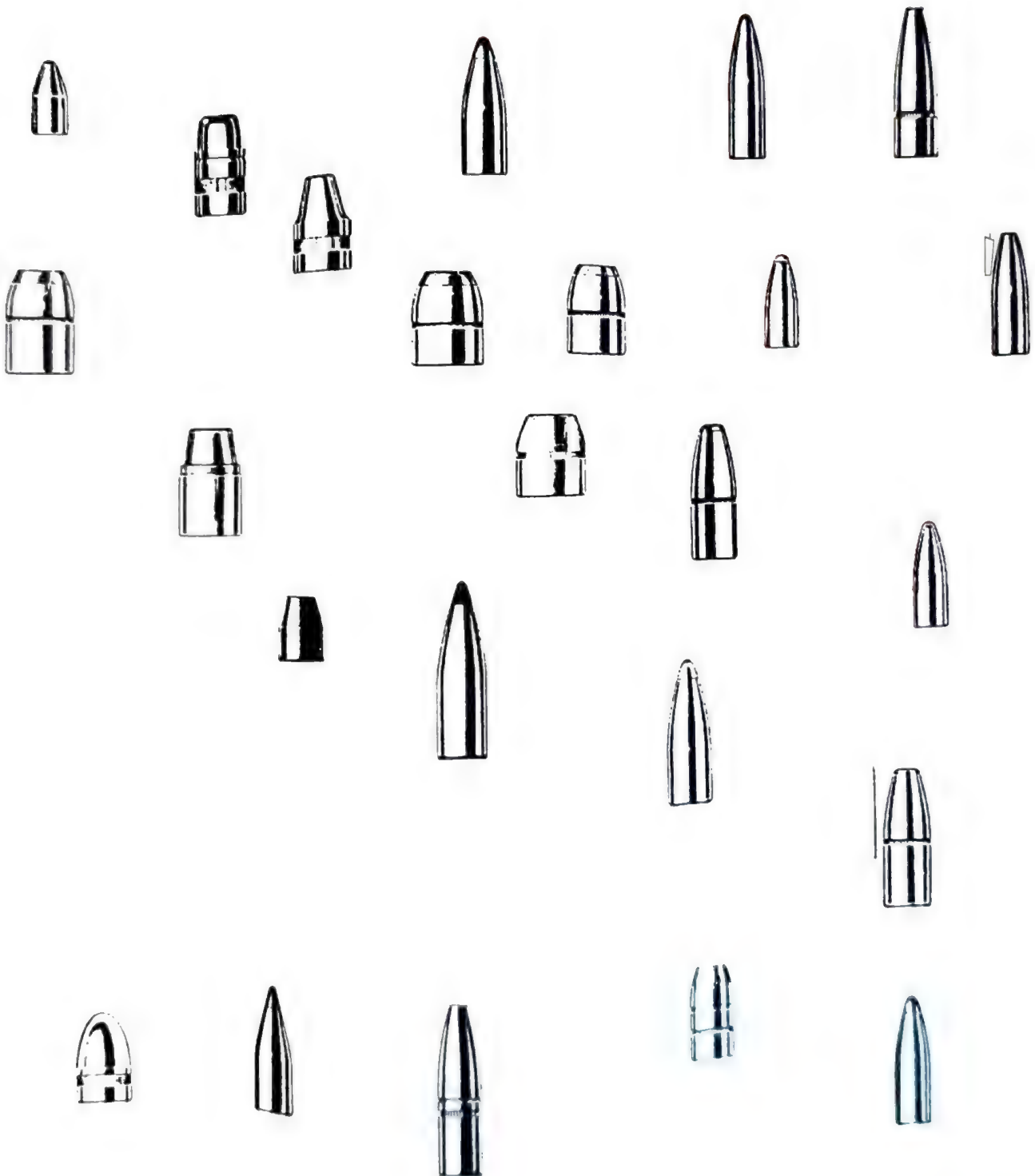
Date: 93/ 09/ 26/ 10/ 05
yy mo da h min

Place: Agency

Case: "Guns and Bullets"

- "We have just the man for your case!" Just you wait Charlie!
- Some info in my book. Secretary to photocopy. Prepare chart from that.
- How to arrange the Chart? Most of the info is in inches. How to find the metric conversions?
- Put three pictures of each kind of bullet into the chart.
- Have to use good English - for Ms. Wesson!
- Wonder if these kids know what "caliber" is?
- If time include some pictures of revolvers? rifles? e.g. 44 Magnum, 38 Police Special? 30-06?

An Assortment of Bullets



Detective Agency Case Set Photos

Math Worlds





PERSONAL

APPLICATION AND INFORMATION
NATIONAL INVESTIGATION SERVICES INC.

NAME

ADDRESS

S.I.N. NUMBER

PHONE

WIFE/HUSBANDS NAME

DATE OF BIRTH

FORMER ADDRESS

DRIVE LIC. NO.

FORMER ADDRESS

EMPLOYMENT OF WIFE/HUSBAND:
PHONE

HAVE YOU EVER BEEN CONVICTED, OF AN OFFENCE, UNDER THE
CRIMINAL CODE OF CANADA (IF YES EXPLAIN)

TRANSPORTATION:

DO YOU HAVE A CAR:

CAR LIC. NO.

MAKE:

INSURANCE CO.

SERIAL NO.

YEAR:

INSURANCE AGENT

POLICY NO.

EMPLOYMENT:

EXPIRY DATE

POSITION APPLYING FOR:

PREVIOUS EXPERIENCE

ARE YOU PRESENTLY EMPLOYED:
FIRM:

ARE YOU BONDED NOW

PREVIOUSLY

PHONE

HAVE YOU EVER BEEN REFUSED A BOND (IF YES EXPLAIN)

MISCELLANEOUS

1. OTHER SKILLS

HOBBIES











